

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/16972

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl.⁷ C08F210/06, C08L23/10, C08J5/18, C07C17/00, C08F4/64,
B32B27/32// (C08F210/06, C08F210:08), C07F7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl.⁷ C08F10/00-10/14, C08F110/00-110/14, C08F210/00-210/18,
C08L23/00-23/36

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Jitsuyo Shinan Toroku Koho	1996-2004
Kokai Jitsuyo Shinan Koho	1971-2004	Toroku Jitsuyo Shinan Koho	1994-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CA (STN), REGISTRY (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 8-283343 A (Mitsui Petrochemical Industries, Ltd.), 29 October, 1996 (29.10.96), Examples 2, 3, 5, 6 (Family: none)	1 3-5, 10-12
Y	JP 8-208909 A (Mitsui Petrochemical Industries, Ltd.), 13 August, 1996 (13.08.96), Claims; Par. No. [0173] & EP 716121 A1 & KR 190429 B1 & US 5998039 A & CN 1139130 A	3-5, 11, 12
X	JP 2000-198892 A (Mitsui Chemicals, Inc.), 18 July, 2000 (18.07.00), Claims; example 2 (Family: none)	2

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
15 March, 2004 (15.03.04)

Date of mailing of the international search report
30 March, 2004 (30.03.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 2002-510358 A (Fina Research, S.A.), 02 April, 2002 (02.04.02), Claims; examples; Fig. 2 & CN 1346373 A & US 6515086 B1 & WO 00/49029 A1	6-8 10
X Y	WO 01/27124 A1 (Mitsui Chemicals, Inc.), 19 April, 2001 (19.04.01), Claims; page 27, compound No. 201 & CN 1327448 A & EP 1138687 A1 & KR 2001086089 A	6-8 10
X	JP 2003-49044 A (Grand Polymer Co., Ltd.), 21 February, 2003 (21.02.03), Claims; Par. Nos. [0147] to [0148] (Family: none)	9
Y	WO 99/02569 A1 (THE BOARD OF TRUSTEES OF THE LELAND STANFORD), 21 January, 1999 (21.01.99), Claims; examples 9 to 12 & US 6184317 B1 & US 6380125 B1	9
Y	JP 37-8483 B1 (Farbwerke Hoechst AG. Vormak Meister, Lucius und Bruning), 17 July, 1962 (17.07.62), Claims (Family: none)	9
A	JP 8-176218 A (Sumitomo Chemical Co., Ltd.), 09 July, 1996 (09.07.96), Claims; examples & EP 669348 A1 & SG 63595 A1 & US 5830968 A	1-12
A	JP 62-119212 A (Mitsui Petrochemical Industries, Ltd.), 30 May, 1987 (30.05.87), Claims; examples (Family: none)	1-12

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

(See extra sheet)

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☒ No protest accompanied the payment of additional search fees.

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Continuation of Box No. II of continuation of first sheet(1)

The following four inventions are found in this international application:

1. Claims 1, 3-5, 10-12

These claims relate to a propylene/1-butene random copolymer which comprises 60 to 90 mole% of propylene units and 10 to 40 mole % of 1-butene units and satisfies specific requirements as to triad isotacticity, molecular weight distribution, limiting viscosity and melting point as well as specific relationship between melting point and 1-butene unit content; a composition containing the same, and use thereof,

2. Claim 2

This claim relates to a propylene elastomer satisfying specific requirements as to propylene/ethylene content ratio and tensile modulus,

3. Claims 6-8

These claims relate to transition metal compounds having specific structure and catalysts for olefin polymerization containing the same, and

4. Claim 9

This claim relates to a polyolefin resin composition which comprises a propylene polymer and at least one of the four elastomers satisfying specific requirements as to limiting viscosity, molecular weight distribution and content of the nonstereoregular portions due to 2,1-incorporation of propylene monomer.

These four inventions are not considered as relating to a group of inventions so linked as to form a single general inventive concept.